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THE  
TREATMENT  
OF  
SUBACUTE AND CHRONIC GOUT,  
BY  
ALEXANDER HADDEN, M.D.,  
NEW YORK CITY.

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ATTENDING PHYSICIAN TO THE PRESBYTERIAN HOSPITAL, N. Y., AND  
CONSULTING PHYSICIAN TO THE NORTH-EASTERN DISPENSARY, N. Y.

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NEW YORK:  
Burr Printing House, 18 Jacob Street.

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## Treatment of Subacute and Chronic Gout.

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THE common varieties of Gout were described by nearly all the physicians of the early period of medical science who left records of their practice. They also distinguished them with precision from diseases of kindred nature, and their theories of the causes which produce the disease are still universally accepted. Nor did the method of treatment they recommended differ materially from that prescribed by the best authorities of our own times. Hippocrates, Galen, Celsus, Artaeus, Paulus Ægineta, and other early writers have left descriptions which prove that the conditions and phenomena of Gout were clearly understood by them, and it is only by the assistance received from modern chemistry and microscopy that modern physicians have been able to advance beyond the knowledge these ancient authorities possessed. These facts are evident from an examination of the works on the subject by modern writers, prominent among whom are Garrod, Todd, Watson, and Budd.

The diagnostic signs admitted by universal consent as indicating the presence of Gout, as distinguished from other kindred diseases, are uric acid in the blood and urine, where it is found in the form of the urate of sodium, and the existence of deposits of the same around the joints. I shall therefore make direct reference to these facts as cardinal points in the treatment of the malady.

Some of the causes, however, which are usually assigned as prominent in the production of Gout are, I believe, rather apparent than real, and they have been accepted as such, owing to their intimate association with

the real causes. I have been led to this conclusion by observations I have made in the management and treatment of a number of cases of this disease, which have been recently under my care; and their clearly demonstrated results confirm this opinion. I refer chiefly to the commonly accepted theory that the disease is generally produced by the use of a diet embracing a large proportion of meat and articles largely composed of nitrogenous and albuminous principles.

Heresofore all writers on this affection have agreed in classing such aliments as among the chief factors in the production of Gout. Hence in their treatment they have excluded them almost entirely from the dietary of patients subject to this ailment, whether suffering from it in the subacute or chronic form. When they have allowed it at all, it has been in chronic cases only, and then as a means of restoring the system, and not as a prophylactic.

The treatises which have been issued on this subject all indicate that the foregoing theory and practice are generally accepted as authoritative. *Cullen* remarks that Gout seldom attacks those who live on vegetable diet, or those who are employed in constant bodily labor. This opinion is still the prevailing one among modern practitioners. *Mr. Garrod* asserts that excesses of food—especially animal food—favor production of Gout, but allows, in the chronic form, a diet of vegetables and a sparing admixture of meats. *Syndenham* also allowed in this form the easily digested meats with vegetables during convalescence only. *Mr. Garrod*, in speaking of the uses of meat, evidently was aware that the general prejudice against this form of diet was unreasonable, and yet not defending it, instances the tortoise, which feeds exclusively on lettuce, excreting more urate of ammonia in proportion to its weight than the dog, which feeds entirely on animal food. *Sir Thomas Watson*, in his treatise, includes this diet among causes which tend to the development of Gout, but he

evidently had doubts whether or not it was a prominent cause. In this connection he refers to the fact that butchers as a class are not peculiarly subject to the malady, although they partake largely of animal food, and, if it is objected that the gout-producing effects of the diet are counteracted by the exercise their business involves, he replies, that the immunity observed cannot be due to exercise, because the huntsman, who also takes abundant open-air exercise, and who is also a free liver, does suffer from the affection, while men and women of sedentary habits are not especially apt to suffer. But in spite of these observations Sir Thomas Watson agrees with other authors in excluding these foods in the treatment he prescribes, as he also does malt liquor and wines. *Dr. Wm. Budd* seems to be more positive in his opinion as to the causes of gout; he ascribes it chiefly to malt liquors, and in support of his conviction he refers to its effects upon the laboring men of London and ballasters of the Thames, who drink excessively of this beverage, and who almost universally suffer from the malady, although taking a large amount of out-door exercise. *Dr. H. Bentley Todd*, in an article on Gout in the London *Journal of Medical Sciences* for December, 1843, recommends, in a cautious way, the employment of a moderate amount of animal food in the treatment of this disease; and at the same time all vegetables having no saccharine properties, as such are not prone to acetous fermentations in the stomach and duodenum, and remarks that a diet of this kind, regulated as to quantity, is the most conducive to the re-establishment of a healthy digestion, when convalescence is well established.

Many other theories have been from time to time enunciated by medical men, in regard to the nature and pathology of Gout, but they are too numerous to dwell upon in this article. I will therefore proceed to the relation of a few cases, which will exhibit some new facts, or at least some facts not hitherto observed in the treatment of this complaint.

CASE I.—D. B. P., aged 50; native of U. S.; married; by profession a lawyer; residence, Brooklyn, N.Y., came into my service at the Presbyterian Hospital, December 1, 1879; had been an invalid for the past eighteen months, and for the previous four months had been a hospital patient—a sufferer from subacute Gout. Before this illness his health had been uniformly good, had a fine physique, tough and rugged; had not acquired any constitutional disease, nor did he know of any that he could have inherited from either parent, both having died at an advanced age and had enjoyed through life unremitting good health. His own mode of life, he states, had not been intemperate, although he had indulged somewhat in all kinds of alcoholic liquor, and had otherwise been a free liver. When placed under my care his condition was about as follows: Confined to bed and unable to move any of his members without assistance; had a troublesome bed-sore on his sacral region, a severe gouty conjunctivitis of right eye; temperature of his body ranged from  $100^{\circ}$  to  $102^{\circ}$  Fahr.; pulse, a little faster than normal, 74 to 80 beats per minute; joints of hands and feet very much swollen, also red and very painful, and distorted by tophaceous or gouty deposits; knees, shoulders, elbows, wrists, and temporo-maxillary articulations were also stiff, swollen, and painful; could take no food except that which had been reduced to a fluid or semi-fluid state; was troubled at times with flatulency, and often with diarrhoea, alternating with constipation. His heart, on examination, was found feeble in action, but not in a diseased condition. Brain, lungs, kidneys, and liver were also found to be free from any organic affection; urine was excreted in abundance; specific gr. was 1010 to 1013, showed no albumen or renal casts, only a large deposit of the urate of sodium, and amorphous urates. His blood was examined, and urate of sodium found in it also. His case was, in fine, a typical one of subacute Gout, in an advanced stage, and still advancing. His treatment up to the time he

came under my care, and for a brief period thereafter, had been according to the well-recognized plans, but without any permanent relief, and unless under the influence of an opiate, his pain was constant and excruciating. In every respect his case was regarded as hopeless, and temporary relief from pain was all that the attendants looked for. December 8th, 1879, a new departure in treatment was taken. Allowed a sufficient amount of opium (gr. j. every six hours) to quiet pain and control a diarrhoea, which then existed. Salicylate of sodium, gr. v. three times a day, to counteract any fermentation of food that might take place, and to relieve occasional rise of temperature; was put upon a diet of meat and such vegetables as contain neither amylaceous nor saccharine principles. Malt liquors and alcoholic stimulants were withheld; his hands, wrists, and fingers were incased in plaster of Paris to prevent the involuntary muscular movements, which were very painful. A warm-water sponge bath followed by gentle rubbing with a soft towel was ordered three times a week, at night. December 20th, a marked improvement could be seen. The urates had nearly disappeared from the urine, which was less in quantity and had raised in specific gravity to 1018. Flatulence not at all troublesome. Bowels rather constipated; kept regular by a compound colocynth pill (gr. iv.) given at night when required. Feet and legs were ordered to be bandaged with a flannel roller. December 31st, still improving; hands, shoulder, and jaws were the seat now of the most trouble; sleeps without opiates. A trace of urates is found in the urine; general health perceptibly improving. January 15th, 1880, was beginning to sit up in bed. January 31st, progressing favorably; urates entirely gone from the urine. Joints of thumbs and index fingers were yet disposed to swell and become red at times. In February the salicylate of sodium was substituted by salicin, and the diet disregarded; a relapse in a short time took place and continued for several weeks. The former treatment

was again resorted to, and improvement commenced at once and continued up to the time he left the Hospital, December 1880, at which date he had no gouty characteristics in the urine ; bowels were regular and not troubled with flatus ; joints were enlarged by tophaceous deposits, and the outer margins of the external ears roughened by the same ; was able to walk through the ward on crutches with considerable ease. November 7th, 1881 ; reports that his joints are yet stiff, but not swollen or painful ; that he sleeps well, walks about at times with a cane, and rides out in a carriage every day, and has gained in weight 48 pounds ; is in excellent health otherwise, and that he yet keeps up his special diet ; occasionally, he says, that he has diverged, but has been reminded by a slight return of pain of his transgression.

CASE II.—Rev. C. P., aged 57 ; native of U. S. ; married ; Professor of Mathematics in a State University ; has hereditary gout, several of his ancestors and near relatives having suffered from the disease. Since 1848 he has himself been subject to attacks of the malady, which were sometimes attended with brain disturbances, causing him upon one occasion, to lie unconscious for three weeks. These attacks became more frequent and of longer duration, until, in the autumn of 1875, he became a confirmed invalid, not able to walk about much, or attend to the duties of his profession, and so remained up to the time of his coming under my care. During the spring of 1879 he had some mitigation of his sufferings, but in September of the same year, although residing in a district famous for its salubrity, he was taken with fever, which continued unbroken for three weeks ; and from this time he never left his bed until he set out for the Presbyterian Hospital, New York, where he arrived December 6th, 1879. I saw him for the first time on the 7th. In this case, as in Case 1, nearly all the joints in the body, both large and small, were inflamed, swollen, and painful. He had lost all appetite, and food had become distasteful ; his digestion was dis-

ordered ; there were great and frequent evolutions of gas in the intestines, and the bowels were obstinately constipated. Pulsations of the heart were feeble and slow, 45 to 50 per minute, and intermittent, with mitral regurgitant murmur. He had been rapidly losing flesh and strength, and the condition of his nervous system was such that he could neither endure light nor sound. He had been living mostly upon farinaceous food, fruits, and milk, for several months previously. He had taken all the remedies usually prescribed in such cases, and also stimulants, both spirituous and malt, but all without the least benefit. Treatment : He was ordered a cathartic pill of compound colocynth (gr. iv.), in order to free his bowels. He was then put upon salicylate of sodium, gr. v., three times a day, a half hour after meals ; an anodyne at night, of chloral hydrate, gr. x., potas. bromide, gr. xx., in a tablespoonful of water, to give sleep and allay pain. December 8th, was put upon diet substantially the same as ordered for case No. I. A sponge bath of luke-warm water was ordered to be given every night, followed by gentle rubbing with a soft towel. On this treatment, by January 8, 1880, one month from its commencement, a marked improvement had taken place in the patient. His urine, which was at first acid and loaded with the urates, oxalates, and some phosphates, with specific gravity 1012, had changed ; its reaction was neutral, the urates, oxalates, and phosphates had nearly disappeared, and specific gravity had gone up to 1018. On the 18th, the urine showed alkaline reaction. The soft deposits around the joints were rapidly disappearing and the hard tophi were becoming more prominent. January 31st ; still improving ; sits up during most of the day and walks about with the assistance of a cane ; sleeps well at night ; spirits good ; reads and writes for pastime. During February and the early part of March the treatment was varied a little, having gone under other medical direction ; salicin was given, instead of the salicylate of sodium, and the diet was not so carefully guarded. The

consequence was that a relapse took place. During the latter part of March he again came under my care ; the treatment was resumed and the régime was strictly enforced. May 1st, his condition was in every respect promising. June 1st, was walking about with only a cane, outside as well as inside the Hospital. July 1st, still improving ; has had no relapse ; continuing the diet. August, was discharged from Hospital quite well, excepting a little stiffness, the result of old deposits in joints and tendons ; urine normal ; bowels regular ; appetite good. Heard from November 2d, 1881, was doing quite well ; has had no return of any symptoms of the gout ; continues the diet as nearly as the markets of his place of residence will allow.

CASE III.—S. J—, æt. 22 ; native of the U. S. ; single ; conductor on horse-cars. Admitted to Presbyterian Hospital January 6th, 1880. Two years ago had an attack of gout in right foot, right knee, and hip, with considerable pain and swelling, which continued for two months. Both hands were also slightly swollen and somewhat stiff. No distortion, however, had yet taken place in any of the joints. These conditions continued with intermissions up to the time of his admission. On January 8th, he was put upon the meat and non-amylaceous and non-saccharine diet, and ordered to take salicylate of sodium (gr. v.) after each meal. January 20th ; improvement in patient's condition was very manifest, the urates, which were in abundance in his urine on admission, had disappeared and his hands and other members had become quite supple ; but as he was discharged for insubordination on the 26th, having been in the hospital only a little over three weeks, the time was too short to show the full effects of the treatment ; but so far as the case had progressed, the same favorable results were seen as in the preceding cases.

CASE IV.—M. G—, æt. 35, native of Ireland ; married ; by occupation housekeeper. Admitted to Presbyterian Hospital December 1st, 1879. Has had trouble

with her feet for the last five years, interfering very materially with locomotion. About six weeks previous to admission her feet became œdematosus and the ankle-joints very tender. The knees became involved subsequently, and finally the wrists and elbows. All these joints were swollen and tender, and at times red.

On December 6th, she was ordered to be put on the meat, non-amylaceous, and non-saccharine vegetable diet, and the right hand to be put in a plaster-of-Paris bandage, as it was intolerably painful from involuntary muscular movements. In this case, as in the others, the urates disappeared from the urine, and the specific gravity steadily increased from 1012-1015, then to 1018 and finally to 1020, and the patient's general health showed manifest improvement. On the 26th, the diet was changed to general hospital diet, embracing the amylaceous and saccharine vegetables. Although the effect was not at once seen in the urine, it was immediately apparent in the general health of the patient. The tone of the system was evidently lowered. But on the 5th of the following month, twelve days after the change had been made, the urates reappeared in the urine ; at this time she was again put upon the special diet. The patient left the hospital a few days afterward, discharged at her own request ; so that I have no means of knowing the final result. The history of the case is given in this connection, simply because it illustrates so well the effect of the special diet in causing the urates to disappear from the urine ; and then again the result from the employment of a general diet in causing their reappearance in large quantities.

I would call special attention to this method of putting gouty patients upon a diet of strictly animal and albuminous foods, together with such vegetables as are destitute of amylaceous and saccharine properties ; for that is the central fact in the above plan of treatment. It may be noticed too, that in the treatment of these cases none of the usual medicinal agents have been em-

ployed, with the exception of salicylate of sodium, and such others as were from time to time indicated for the correction of merely temporary conditions.

As has already been shown, Gout may be produced under many and various conditions and circumstances ; either where there is a hereditary predisposition to the malady, or without ; under circumstances of active exertion, or where persons have led sedentary lives ; where there has been use or even abuse of the stronger alcoholic beverages, or where the subject has been strictly temperate, even abstinent. Under each or all of the above conditions, persons may have the gout or may escape it entirely. But while this is the case, it is a settled fact that those who live largely upon animal food are less liable to the disease than others ; while, according to Dr. Gubler, of Paris, who has recently been making extensive researches into diseases of the blood vessels, those living upon an exclusively vegetable diet, as do many of the French peasantry, and more notably the monks of La Trappe, are peculiarly subject to chalky or calcareous deposits in the arteries. The same is true of animals and birds as well. Siedangrotzki, in his observations on some of the diseases of birds, states that he has found tophi or gouty deposits in the claws of the pigeon ; I myself have seen the same in the claws of the barnyard fowl, and the turkey, in a state of domestication, when highly fed on grain. Mr. W. A. Conklin, Director of the Central Park Zoological Garden, in answer to my inquiry, states that his grain-eating birds, especially the pigeon, are very liable to enlargement of the joints ; but his carnivorous birds, such as the eagle and the vulture, notwithstanding that some of them have been in captivity and well fed for more than twenty years, have never shown the slightest signs of any of these enlargements. He also added that he had occasionally seen enlargement of the joints in some of his herbivorous and granivorous animals, which were in the smaller joints, in the tarso-phalangeal, and which were not the results of

injury, though none can be considered either highly fed or in want of exercise. His carnivorous animals, however, he said, were very free from such conditions ; in fact he had never seen a single instance of it even in those which are kept in captivity in small cages. As to the nature of these affections, he was not prepared to give any opinion ; the subject was new to him, his attention having never been called to it before, but he had no doubt they were of a nature somewhat similar to the gout. These facts have, to my mind, indicated the point, and justified the departure in the treatment of this disease.

Might it not be, too, that in the case of animals and birds, as also in the case of the human subject, feeding upon too exclusive a diet of vegetable food, abounding in amylaceous and saccharine matter, under certain conditions, species of fermentations are set up, resulting in chemical changes somewhat analogous to the fermentation of vegetable matter out of the body ? For example, the fermentations by which wine and beer are produced.

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Since the publication of the above article, in the *Medical Record* of April 17th, 1880, I have pursued the same line of inquiry and practice in the management of these painful and obstinate conditions, with such results as will be set forth in the following cases in this second series :

CASE I.—T. M.—, æt. 35 ; stonecutter ; married ; native of Ireland ; admitted into the Presbyterian Hospital, September 11th, 1880, suffering from subacute Gout. He gives no hereditary history of the affection ; was healthy until seven years ago, when he was seized with intermittent fever, from which he recovered in a short time. Three years afterward had an attack of acute articular rheumatism, lasting for three weeks ; has since had rheumatism, as it has been called, but which seems to have been subacute Gout, leaving deformities of wrists, fingers, and ankles. On admission, is emaciated in appearance, complains of severe pains in

the shoulders and hands, which were swollen and sensitive upon pressure. Is unable to flex either fore-arm. Has constipation, anorexia, and occasional pains in the joints. He passes restless nights. Joints of feet and hands thickened, and the seat of deposits of urate of sodium. Urine upon examination was found acid, sp. gr. 1010, no albumen, no casts. Deposits of urate of sodium quite abundant. Was put upon the usual anti-rheumatic treatment without any improvement.

October 1st, came under my care ; complained of considerable pain in his joints ; hands and feet swollen, and red ; some pain and swelling in the other joints. Evidences of the urate of sodium deposits in many of the joints. Temperature a little above normal. Urine alkaline, sp. gr. 1010: on microscopic examination, crystals of the urate of sodium were found. Bowels were constipated.

Treatment: Ordered, to relieve constipation, pill colocynth (gr. iv.), at night ; for the painful and swollen members, a weak alkaline wash, to be applied with cotton cloths or bandages ; to prevent fermentation of food in stomach, salicylate of sodium (gr. v.), an hour after eating, in a teaspoonful of water ; also opiates in sufficient quantity to secure sleep and rest. Was put upon the diet of meat and other albuminous food, with such vegetables as contain neither starch nor sugar. October 20th, the acute pains had nearly subsided ; had very little swelling in joints ; better motion in feet and hands ; walks without much difficulty, is comfortable at night without an anodyne ; not in the least troubled with flatulence. October 26th, discharged, feeling quite well.

CASE II.—G. A—, æt. 48 ; butcher ; married ; native of England ; high liver ; admitted November 16th, 1880, suffering from chronic Gout. Has had acute attacks in wrists, elbows, and shoulder of the right side ; knees, ankles, and hands were affected ; had gouty deposits in the smaller joints, and excess of urates in the urine. November 17th, was placed upon the treatment

as above described. Urates disappeared from the urine in a few days, and it became otherwise quite normal. Patient went on without interruption through convalescence. December 9th, discharged, relieved of all suffering; the consequences of former attacks only remaining.

CASE III.—I. D—, aet. 50; painter; widower; native of Ireland; admitted to Presbyterian Hospital January 13th, 1881, suffering from an attack of subacute Gout. Wrists, hands, feet, and ankles were swollen and inflamed; had been somewhat intemperate in habits. Temperature of body about a degree higher than normal. Urine on examination was found to contain urate of sodium, and the phosphates and oxalates were in abundance. January 25th, the treatment as in Case I. was commenced. February 11th, the urine contained no urates, but some phosphates and oxalates; he was much improved in general health, and suffered no pain; appetite good. March 13th, discharged, feeling quite well; hands and feet in very good condition, and quite supple.

CASE IV.—E. G. N., native of New York; aet. 60; single; by profession, lawyer; admitted to hospital December 16th, 1880. General appearance feeble and pale, looked prematurely old; appetite poor. His feet and ankles were swollen and a little painful; joints of fingers somewhat enlarged, showing gouty tophi. Urine, on examination, contained urate of sodium, acid, (sp. gr. 1020; also deposits of the amorphous urates. Bowels constipated; urine not large in quantity. Gives no history of any ailments, either inherited or acquired by habits of life; had always been temperate, and had had uniformly good health up to several months ago. Business required that habits should be sedentary. December 17th, was put upon the above special treatment. December 20th, was feeling stronger; had less pain; better appetite; urates had diminished in his urine. December 30th, urine nearly free from the urates; less pain in joints. January 13th, 1881, had some œdema in feet and ankles; bandages were applied. January 20th, urine normal;

joints more mobile ; œdema much less. Considered himself quite well ; was discharged at his own request.

CASE V.—Mrs. G—, æt. 57 ; native of Scotland ; married ; a free liver ; was in the habit of drinking considerable malt liquor. Did not inherit Gout. Had been subject to a number of attacks of it during the past ten or twelve years. Came under my care, September 20th, for treatment of an acute attack of the same. Suffered the ordinary intestinal symptoms ; somewhat reduced in flesh ; bowels constipated ; feet much swollen ; smaller joints of feet greatly so. Joints of thumbs, wrists, and elbows had in each of them gouty deposits, or tophi ; specific gravity of urine, 1012 ; traces of albumen ; no casts. Swollen members were bandaged with cloths wrung out in alkaline water slightly warmed. Cathartic of comp. colocynth pill, five grains, at night, and salicylate of sodium, five grains, four times a day. Opiates ordered in sufficient quantities to quiet the pain at night. Put upon the diet as previously mentioned. October 1st.—Had greatly improved ; no urates now in the urine, and all traces of albumen had disappeared. Some pain in joints, and some œdema. November 1st.—Entirely well ; same diet being continued throughout. I saw her a short time since (September 10th, 1881), and she says she has had no return of the Gout ; health good, but continues the diet under protest.

CASE VI.—T. O. H—, æt. 41 ; grocer ; married ; native of New York ; admitted to Presbyterian Hospital, July 27, 1881, suffering from what was thought to be gonorrhœal rheumatism ; he was quite weak. Joints of hands and feet swollen and painful. Was put upon the usual anti-rheumatic remedies, and continued on these up to August 20th. At this time he was confined to bed. Joints of hands, feet, and knees, painful, swelled, and thickened with gouty deposits. Tophi in the outer margin of the external ear ; urine was examined, and found to be of light specific gravity ; some albumen ; urate of sodium in abundance. Was put upon

the diet already described, and bandages wet with a weak alkaline solution wrapped around hands and feet. Was given salicylate of sodium three times a day, after eating. Bowels, which had been alternately relaxed and constipated, were regulated by pil. colocynth comp. (gr. iv.) twice a week. Fifteen days thereafter urine had become normal ; hands almost entirely relieved of pain and swelling ; also knees and other members, with the exception of the right foot, which remained swollen, but not painful. September 20th.—Still improving. Is walking around, only one foot slightly swollen and stiff ; otherwise in good condition ; appetite good, bowels regular, and is increasing in weight. October 1st, was discharged, cured.

Dr. J. F. Duffield, house physician, reports the following case, which was continued on the same plan of treatment after my term of service had expired :

C. F., æt. 33 ; Ireland ; married ; housewife ; admitted into Presbyterian Hospital September 16th, 1881, into the service of Dr. Alex. Hadden. Family history, negative ; previous history, six years ago had attack of subacute rheumatism, confined especially to knee-joints, which lasted six weeks ; had been occasional beer-drinker ; gave no specific history ; present illness, six months ago right knee became swollen and stiffened, and two months later the left knee was similarly affected. Two months ago, both knees became much more swollen, and were red, hot, tender, and painful. Wrists and ankles affected in same way simultaneously. This last attack completely disabled her. At first diagnosed as rheumatoid arthritis.

Treatment.—Under rest, Vichy, and large doses of salicylate of sodium, the acute symptoms soon subsided. She was then put on syr. ferri iodid., m. xxx., t. i. d., and small doses of salicylate of sodium, counter-irritation with iodine, and by various other means, locally. Under this treatment she did not make any material improvement. Her toes, ankles, and knees remained swollen and

stiffened, and she was still unable to walk. No tophaceous deposits could be discovered. Two weeks after admission, she was put on Dr. Hadden's treatment for subacute and chronic Gout. Her urine at that time was sp. gr. 1022-28, always high-colored and acid, and loaded with urates. Under this treatment her urine became normal in one week, and her arthritic symptoms gradually but surely improved. The treatment was kept up until her discharge, which took place on December 5th, 1881. At that time her urine was normal, all her joints in fair condition, except the knees, which were still somewhat swollen and stiff. She was, however, able to walk very well with the aid of a cane, a feat she had not been able to perform so freely for months previous ; general health very much improved.

\* \* \* \* \*

It will be seen from the above cases that the withdrawal from our diet of the saccharine and amylaceous matter, and the free use of animal diet, have acted beneficially in the treatment of patients suffering from subacute and chronic Gout ; dissipating entirely from the urine and also somewhat from the joints, the deposits peculiar to these affections in a space of time ranging from seven to thirty days, and restoring the general health. Therefore it is reasonable to infer, we think, that this kind of food may be a factor in the production of this disease in the human system, as well as the other well-recognized causes.

Garrod gives among his predisposing causes of gout, malt liquors and wines, even the light wines, and says that their free indulgence for several years will bring on the disease in those who have not derived it from their ancestors, and also that Port enjoys a very marked reputation in this respect ; and that Sherry, however dry, is by no means an innocent beverage, so far as Gout is concerned. He also states that malt liquors predispose strongly to the production of Gout, and supports his statement by the hospital reports of the large cities in

England, where porter and other malt liquors are much indulged in by the laboring classes, who are there treated. Even the pale bitter ales, to many so palatable, will, if freely indulged in, give rise to Gout. Of cider, he says, the fully fermented—that in which the saccharine matter has been gotten rid of—has little power, but that sweet and partially fermented cider predisposes to Gout. Facts and opinions such as these may be indefinitely continued ; but as they only serve to show that certain kinds of food, especially the starchy and saccharine, contribute to the development of these affections, I will not pursue them further. I had hoped that during the past year some physiological experiments would have been made that would have either confirmed or disproved the hypothesis advanced in the last paragraph of my published article on this subject, but up to this time I have seen nothing to either confirm or disprove it. It stands only as a clinical fact.

To briefly quote the hypothesis then made : "Whether some fermentation may not take place in the alimentary canal of such animals, birds, and human beings as subsist largely upon a diet composed mainly of amyloseous and saccharine principles, or both, similar to the fermentation which takes place in the manufacture of malt liquors or wines, etc.?" The carnivorous animals and birds are entirely free from Gout, or any enlargements resembling the disease in parts most likely to be attacked, as may be confirmed by observation at any time. I have examined the joints of a great many of them, some of them wild and in a state of nature ; others in captivity, and which had been so for fifteen or twenty years, and still remained free from gouty deposits ; also those domesticated, and the same conditions were observed. I have also examined the herbivora, or those subsisting largely upon amyloseous and saccharine foods. In the horse, which is, perhaps, the most highly fed of any of the domestic animals, may be seen enlargements of the joints

frequently ; those enlargements which are known to veterinarians as spavin and ringbone. The deposits to which many of these enlargements are owing, I have had examined microscopically, and they were found to be composed of a substratum of the urate of sodium. Those which were not of this character were found to be the results of sprains and other injuries ; but I refer to such as are blood diseases, inherited and acquired. Several of these specimens may now be seen in the museum of the Columbia Veterinary College, New York City. Cows and sheep, when highly fed, are also subject to this condition, I am told by parties having the care of stock of this kind.

To the evidence of Seidangrotzki, that pigeons are subject to gouty deposits in their metatarsal and metacarpophalangeal joints, we will here add the testimony of M. Méguin, who states that parrots die of Gout ; that in their digital and tarsal articulations are veritable gouty tophi. The microscope, he says, shows that the substance of which they are composed is the urate of sodium. This species of bird is purely granivorous, but M. Méguin attributes it to their confined and caged condition, and their inability to indulge in their natural freedom. This cause is evidently not the true one, for pigeons, which have their natural freedom, barn-yard fowls, and the grain-eating birds generally, suffer and die of Gout, as do parrots, when they enjoy the greatest amount of freedom.

For the chemical and microscopical examination of the urine and the careful carrying out of the plan of treatment of the greater part of the above narrated cases, I am indebted to Drs. John A. Wells and John F. Duffield, members of the House Staff of the Presbyterian Hospital, and take pleasure thus to make acknowledgment.







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